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Wildlife Of The Koyuk Watershed

by Scott R. Robinson

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WILDLIFE OF THE KOYUK WATERSHED

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WILDLIFE OF THE KOYUK RIVER, ALASKA

SCOTT R. ROBINSON, Wildlife Biologist, Northwest Resource Area, Fairbanks District Office, Bureau of Land Management. 1985.

INTRODUCTION

The Koyuk River is one of the 25 Alaskan rivers nominated for the National Wild and Scenic Rivers Systems by the Alaska National Interest Lands Conservation Act, P.L. 96-487 (ANILCA). An interagency evaluation trip was conducted from 29 June 1982 to 4 July 1982. Howard Smith was the BLM representative. A second trip was conducted from 24 to 30 July 1982 to evaluate fish and wildlife values of the river. This report summarizes the wildlife resources, while Webb (1982) summarizes the fish resources. This report is a revised format of the original report that was completed in 1982.

No known current wildlife research is being conducted within the Koyuk watershed. Racine (1979) documented effects and early revegetation of two 1977 and one 1971 tundra fires on the Seward Peninsula. He showed that tundra burn patterns were generally patchy with burned and unburned areas intermixed. Revegetation in tussock-shrub tundra was rapid but much slower in drier low shrub areas.

STUDY AREA

The Koyuk River is on the eastern end of the Seward Peninsula and drains into Norton Bay. The main fork lies between the Continental Divide to the north and the Tubutulik River to the south. Headwaters of the East Fork drains the south side of Talik Ridge. Granite Mountain lies on the Continental Divide (Figure 1). The river is very slow and meandrous, dropping approximately 50 vertical feet in the 43 miles that we floated.

Terrestrial habitat was classified according to established systems (Bailey 1976, USDI BLM 1982, Viereck et al 1982). At least nine standard habitat sites were identified within the Koyuk watershed. The river with gravel bars and tributaries was called Freshwater Aquatic Herbaceous. The Wet Graminoid Herbaceous identified the wetland riparian habitat. These types merged near the river mouth. River riparian habitat was composed of Closed Needleleaf Forest, Closed Tall Shrub Scrub and Open Low Shrub Scrub. A hilly, tall shrub/forest habitat was not visited and, therefore, cannot be adequately described. The hilly Mesic Graminoid Herbaceous type identifies the tussock tundra. The lava and barren rock was not visited (Table 1).

The entire watershed is approximately 1,301,275 acres (2,033 square miles) in size (Table 2). The State of Alaska, administering 35% of the watershed, is the largest landowner. The Bureau of Land Management is the second largest landowner, administering 31% of the watershed. The Native corporations have selected approximately 348,178 acres in addition to the BLM's 31% of which a portion will be conveyed. The National Park Service manages seven percent of the upper watershed of the Koyuk's main fork, while the Elim Native Corporation owns less than one percent of the watershed.

Sethkokna
Kiwalik River
CONTINENTAL DIVIDE
Kiwalik Mt.
First Chance Cr.
Granite Mt.
Talik Ridge
Sweepstakes Cr.
River
BENDELBEN MOUNTAINS
Peace
East Fork
Haycock
Tubutulik River
KOYUK RIVER
Dime Landing
Inglutalik River
Koyuk
NORTON BAY
FIGURE 1
Barrow
Nome
Fairbanks
Anchorage
N
KOYUK RIVER WATERSHED
miles
5 0 5 10

Evidence of consistent human use includes mining camps near Granite Mountain and Haycock, an airstrip near and radio towers atop Granite Mountain, Dime Landing and the village of Koyuk at the river's mouth. Winter use trails criss-cross the watershed.

METHODS

Two people conducted the second trip from 24 to 30 July 1982. Transportation was by fixed-wing aircraft between Fairbanks and Granite Mountain, and then by helicopter to the river. A 12-foot Avon Redshank was used for floating the river from river mile 105.5 to 62.5. Four days were spent floating 43 miles with an additional day hiking across tundra habitat. Wildlife observation techniques included observations of animals, songs, tracks and scats. Fish collection was made by hook and line and by gill net.

RESULTS AND DISCUSSION

Species Account. Table 3 lists 68 species of wildlife and five species of fish known to inhabit the Koyuk watershed. Phylogenetic sequence and nomenclature follow Jones et al (1975) for mammals and AOU (1983) for birds. Hypothetically occurring species, such as yellow warbler and gray-cheeked thrush, are not included. The grebe, redhead and glaucous-winged gull observations are uncertain. Several small sandpipers were observed but species identification was not attempted. Chickadees were heard, but species identification was not possible. Of these, 52 (71 percent) are considered common, 12 (17 percent) uncommon, 1 (1 percent) rare and 8 (11 percent) occasional. Population trend is known for only 14 (19 percent) of the 73 species. Of these, nine are increasing and five remain static. All observation data and field maps are on file in the BLM Northwest Resource Area Office, Fairbanks. The following brief discussion highlight specific animals (Carl Grauvogel, ADF&G, personal communications, 1982).

The snowshoe hare populations have been high for the last three years and should begin to drop. The fox and lynx populations should follow a similar trend. Beaver are increasing with the largest population located on the East Fork. Other tributaries, like First Chance Creek, also have beaver.

One to three wolf packs live within the Koyuk watershed with some possible spill over into McCarthy's Marsh and the Kuzitrin watershed to the west and the Kiwalik watershed to the north. Grizzly bear density ranges from one bear per 35 to 60 square miles.

A relatively dense moose population of 300 to 400 animals inhabits the watershed. A high twinning rate exists with an 18 to 25 percent calf survival. Age structure is approximately 20 percent yearlings, 65 percent two- to five-year olds, and 15 percent six-years or greater. Forty percent of the bulls have racks that are 50 inches or greater. ADF&G (1973) has mapped fall and winter moose concentration areas. Fall use is mostly on Kiwalik Mountain and below 2,000 feet on the northeast side of the Bendeleben Mountains. Winter concentration occurs in the river bottom from Dime Landing upstream to approximately river mile 118. Our observations indicate summer use in the river bottom, although summer densities are probably less than winter densities.

A portion of the Western Arctic Caribou Herd has begun to use the watershed. Over 3,000 animals were seen for the first time last winter in the headwaters. The headwaters of the East Fork and Peace River lie on the periphery of present caribou range. However, caribou were first seen last winter on other portions of the watershed (Carl Grauvogel, ADF&G, personal communications, 1982).

Wildlife Harvest. Table 4 lists 15 (20 percent) species that receive moderate and high levels of consumptive use. The remaining animals either receive low consumptive use or are unknown. All nonconsumptive use is low to nonexistent. Most use occurs within a 25-mile radius of the village of Koyuk. Lynx and red fox are the two most pursued furbearers. The lynx harvest has increased from 40 to 140 animals over the past three winters. About 500 foxes are taken annually. Sport harvest of bears has recently decreased due to changes in the regulations concerning nonresidents. Local harvest has always been low. Common waterfowl and salmon inhabiting areas adjacent to the village of Koyuk would be used for food.

Habitat Account. Table 5 lists wildlife and fish occurrence by habitat site within the Koyuk watershed. Food, water, and cover relationships will be addressed for seven standard habitat sites represented on nonselected public land.

The Koyuk River (Freshwater Aquatic Herbaceous) provides opportunities for observing more species than any other habitat. Forty-four animal species, including five fish, were identified. Fish, particularly pink salmon, is a prime food source for predators and scavengers. Returning adults, roe, carcasses and developing juveniles are all fed upon. The water also provides an escape route for duck and geese broods. Bank swallows nest along the cut banks.

The Closed Needleleaf Forest constitutes a major portion of the riparian zone. Twenty-nine wildlife species were observed. Spruce grouse, red squirrel and northern flying squirrel are typical species. Cover is the most valuable asset of this habitat for others. Bald eagles and glaucous gulls perch in the treetops. Super-moist conditions breed abundant mosquitoes which in turn feed swallows and all juvenile birds. Furbearers prey upon the ground nesters.

The Closed Tall Shrub Scrub also constitutes a portion of the river riparian. Twenty-seven wildlife species were observed. The greatest amount of songbirds were found here. Much of the tall browse was out of reach for moose.

The Open Low Shrub Scrub constitutes the remainder of river riparian habitat. Twenty-three wildlife species were observed. Species use is similar to the Closed Tall Shrub Scrub except for fewer songbirds. The value of browse to moose is improved due to its greater availability. Leader growth is good with moderate grazing levels noted on some willows and grasses.

The Unknown Shrub/Forest was not visited, but wildlife use should be similar to the above three types. Based upon habitat requirements of the 73 species, 31± species should be expected to use this habitat.

The Wet Graminoid Herbaceous habitat lies between the river riparian and

higher ground. Twenty-six wildlife species were observed. Sandhill cranes, geese and shorebirds nest along the ponds in this habitat. Foxes, ravens and jaegers are common predators.

The Mesic Graminoid Herbaceous represents the hilly tussock tundra. Seventeen wildlife species were observed, making this the least productive habitat. The lack of vertical spacing discourages more use by songbirds. Jaegers and foxes prey upon the nesting ptarmigan, lesser golden-plover, whimbrel and lapland longspur. Berries are available for bears, while lichens are available for caribou.

Crucial Habitats. The major pink salmon spawning area has been identified. Not only is this area an important link to the life cycle of salmon, but bears, bald eagles, gulls and ravens are drawn to the carcasses.

The numerous gravel and sand bars are small anomalies or inconsistencies to the river habitat. These bars provide necessary access to the salmon carcasses for feeding by scavengers and to the river for watering by moose. Semipalmated plover, lesser golden-plover and arctic terns nest on the bars. Glaucous gulls defended several bars that we approached.

HABITAT CONFLICTS

Present habitat condition is often determined by the existing mixture of food, cover and water. While little can be done to influence the water element, wildland fires can greatly influence the food and cover elements. Kelleyhouse (1980) and Viereck and Schandelmeier (1980) describes fire effects on wildlife. The following premises are generally agreed upon:

1. Fire and wildlife have coexisted for thousands of years.

2. Fire returns plant succession to an earlier seral stage.

3. Early to mid-seral stages have greater floral diversity and, thus, greater wildlife diversity.

The species and numbers of wildlife which humans wish to perpetuate always has been and will be an unsettled argument. However, BLM's policy is to maintain a maximum diversity of wildlife species in sufficient numbers to meet public demands (USDI BLM 1973). This stated policy can be satisfied by allowing fires to burn where threats to human life and property do not exist.

Of six fires within the Koyuk watershed during the 1982 fire season, one burned 150 acres on Native selected land, a second burned 80 acres on National Park land and a third burned two acres on State land. The other three were rained out. Traditional policy of fire suppression is slowly changing as Alaska Interagency Fire Management Plans are written and implemented. The Seward-Koyukuk Fire Plan, which encompasses the Koyuk watershed, is scheduled for implementation in 1984. Different portions of the Koyuk watershed will be covered by full, modified and limited protection standards.

Heavily siltation of the Peace River was observed from the helicopter on 24 July 1982. The possible cause is the mining activity on Sweepstakes Creek which drains into the Peace River.

RECOMMENDATIONS

A variety of wildlife species were encountered along the Koyuk River. Habitat quality for many species appear to be either stable or increasing. The following recommendations are provided for future inventory work and resolving habitat conflicts within the Koyuk watershed.

1. All wildlife observations on file should be combined with other pertinent data such as vegetation, landform and elevation and then be computerized, using an exceptable system.

2. Future study needs include post-fire effects on moose browse availability, productivity and leader growth. The 1977 fire No. 8780 burned along the Koyuk River and may provide study sites. (Carl Grauvogel, ADF&G, personal communication, 1982).

3. Another study need includes moose/bear relationships such as migration patterns and bear diet (Carl Grauvogel, ADF&G, personal communication, 1982).

4. Siltation of the Peace River should be monitored, as outlined in the 3809 Regulations.

5. Fire suppression activities on BLM land should be guided by the Alaska Interagency Fire Management Plan.

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TABLE 1. HABITAT CLASSIFICATION UNITS
KOYUK RIVER, ALASKA

BLM Hierarchy
- -Alaskan Intermontane Plateau Physiographic Region
  - -Seward Peninsula Subphysiographic Region
    - -Spruce-Birch Forest Association
      - -Freshwater Aquatic Herbaceous SHS
      - -Closed Needleleaf Forest SHS
      - -Closed Tall Shrub Scrub SHS
      - -Open Low Shrub Scrub SHS
      - -Unknown Shrub/Forest SHS
    - -Watersedge Tundra Association
      - -Wet Graminoid Herbaceous SHS
      - -Brackishwater Aquatic Herbaceous SHS
    - -Cottonsedge Tundra Association
      - -Mesic Graminoid Herbaceous SHS
      - -Lava and Barren Rock SHS

USFS Ecoregions Hierarchy
- -Polar Domain
  - -Subarctic Division
    - -Coastal Trough Forest Province
  - -Tundra Division
    - -Bering Tundra Province
      - -Watersedge Tundra Section
      - -Cottonsedge Tundra Section

Other
- -Biome
  - -Boreal
  - -Tundra

SOURCE: USDI BLM (1982)

TABLE 2. LAND STATUS OF THE KOYUK RIVER, ALASKA

OWNER/MANAGER	ACRES	SQ. MILE	PERCENT
STATE OF ALASKA	455,650	712	35
BLM	401,674	626	31
NATIVE SELECTED	348,178	544	27
NPS	90,993	142	7
NATIVE	5,780	9	T
Total	1,301,275	2,033	100

NOTE: Area was planimetered and do not represent official acreages.

TABLE 3. RELATIVE ABUNDANCE AND POPULATION TREND OF OBSERVED ANIMALS KOYUK RIVER, ALASKA

SPECIES	ABUNDANCE [1]	TREND [1]
MAMMALS		
Snowshoe Hare (Lepus americanus)	C	I
Northern Hare (Lepus timidus) [2]	C	I
Arctic Ground Squirrel (Spermophilus parryii)	C	
Red Squirrel (Tamiasciurus hudsonicus) [2]	U	
Northern Flying Squirrel (Glaucomys sabrinus) [2]	O	
Beaver (Castor canadensis) [3]	C	I
Muskrat (Ondatra zibethicus)	C	
Porcupine (Erethizon dorsatum)	U	
Coyote (Canis latrans) [2]	O	
Gray Wolf (Canis lupus) [2]	C	I
Arctic Fox (Alopex lagopus) [2]	O	I
Red Fox (Vulves vulpes)	C	I
Black Bear (Ursus americanus) [3]	U	S
Grizzly Bear (Ursus arctos)	C	S
Marten (Martes americana) [2]	O	
Weasels (Mustela spp) [2]	C	
Mink (Mustela vison) [2]	C	S
Wolverine (Gulo gulo) [2]	C	S
River Otter (Lutra canadensis)	C	S
Lynx (Felis lynx) [3]	C	I
Moose (Alces alces)	C	I
Caribou (Rangifer tarandus)	U	I
BIRDS		
Arctic Loon (Gavia arctica)	C	
Grebe (Podiceps spp) [4]	U	
Tundra Swan (Cygnus columbianus) [3]	U	
Greater White-fronted Goose (Anser albifrons)	C	
Canada Goose (Branta canadensis)	C	
Northern Pintail (Anas acuta)	C	
Redhead (Aythya americana) [4]	U	
Harlequin Duck (Histrionicus histrionicus) [3]	C	
Black Scoter (Melanitta nigra)	C	
Bufflehead (Bucephala albeola)	O	
Red-breasted Merganser (Mergus serrator)	C	
Bald Eagle (Haliaeetus leucocephalus)	R	
Northern Harrier (Circus cyaneus)	C	
American Kestrel (Falco sparverius) [3]	O	
Spruce Grouse (Dendragapus canadensis) [2]	O	
Willow Ptarmigan (Lagopus lagopus)	C	
Rock Ptarmigan (Lagopus mutus)	C	
Sandhill Crane (Grus canadensis)	C	
Lesser Golden-Plover (Pluvialis dominica)	C	
Semipalmated Plover (Charadrius semipalmatus)	C	
Greater Yellowlegs (Tringa melanoleuca)	O	
Whimbrel (Numenius phaeopus)	C	

SPECIES	ABUNDANCE [1]	TREND [1]
Sandpipers (Calidris spp)	C	
Common Snipe (Gallinago gallinago) [3]	C	
Parasitic Jaeger (Stercorarius parasiticus)	C	
Long-tailed Jaeger (Stercorarius longicaudus)	C	
Bonaparte's Gull (Larus philadelphia)	C	
Mew Gull (Larus canus)	C	
Herring Gull (Larus argentatus)	U	
Glaucous-winged Gull (Larus glaucescens) [4]	U	
Glaucous Gull (Larus hyperboreus)	C	
Arctic Tern (Sterna paradisaea)	C	
Great Horned Owl (Bubo virginianus)	U	
Belted Kingfisher (Ceryle alcyon) [3]	C	
Tree Swallow (Tachycineta bicolor)	C	
Bank Swallow (Riparia riparia)	C	
Common Raven (Corvus corax)	C	
Chickadee (Parus spp)	U	
American Robin (Turdus migratorius)	C	
Varied Thrush (Ixoreus naevius)	C	
Wilson's Warbler (Wilsonia pusilla)	C	
American Tree Sparrow (Spizella arborea)	C	
Savannah Sparrow (Passerculus sandwichensis)	C	
White-crowned Sparrow (Zonotrichia gambeli)	C	
Lapland Longspur (Calcarius lapponicus)	C	
Rusty Blackbird (Euphagus carolinus)	C	
FISH		
Broad Whitefish (Coregonus nasus)	U	
Pink Salmon (Oncorhychus gorbuscha)	C	
Chum Salmon (Oncorhychus keta)	C	
Arctic Grayling (Thymallus arcticus)	C	
Northern Pike (Esox lucius)	C	
Subtotal - Mammals	22	
Subtotal - Birds	46	
Subtotal - Fish	5	
Grand Total	73	

1.- Source: Brina Kessel and Carl Grauvogel, personal communication, 1982: C-Common, U-Uncommon, R-Rare, O-Occasional, S-Static, I-Increase, D-Decrease, Blank-Unknown.

2.- Source: ADF&G 1973, 1978.

3.- Source: Howard Smith, river trip 6/29/82 - 7/4/82.

4.- Identification not positive.

TABLE 4. ANIMALS WITH MODERATE OR HIGH LEVELS OF CONSUMPTIVE USE KOYUK RIVER, ALASKA

SPECIES	MODERATE	HIGH
Red Fox		X
Grizzly Bear	X	
Lynx		X
Tundra Swan		X
Greater White-fronted Goose		X
Canada Goose		X
Northern Pintail		X
Redhead	X	
Harlequin Duck	X	
Black Scoter	X	
Bufflehead	X	
Red-breasted Merganser	X	
Pink Salmon		X
Chum Salmon		X
Northern Pike	X	
TOTAL - 15	7	8
PERCENT TOTAL	49	51

SOURCE: Carl Grauvogel, ADF&G, personal communications, 1982.

TABLE 5. WILDLIFE OCCURENCE BY HABITAT SITE
KOYUK RIVER, ALASKA[1]

SPECIES	FAH	CNF	CTS	OLS	USF	WGH	MGH
Snowshoe Hare		X	X	X	X		
Northern Hare						X	X
Arctic Ground Squirrel					X		X
Red Squirrel		X			X		
Northern Flying Squirrel		X			X		
Beaver	X		X	X			
Muskrat	X					X	
Porcupine		X			X		
Coyote	X	X	X	X	X	X	X
Gray Wolf	X	X	X	X	X	X	X
Arctic Fox	X					X	X
Red Fox	X	X	X	X	X		
Black Bear	X	X	X	X	X	X	X
Grizzly Bear	X	X	X	X	X	X	X
Marten	X	X			X		
Weasels	X		X	X	X		
Mink	X		X	X	X		
Wolverine	X	X	X		X		
River Otter	X		X	X			
Lynx	X	X	X	X	X		
Moose	X		X	X	X	X	
Caribou					X	X	X
Arctic Loon	X					X	
Grebe	X					X	
Tundra Swan	X					X	
Greater White-fronted Goose						X	
Canada Goose	X					X	
Northern Pintail	X					X	
Redhead	X					X	
Harlequin Duck	X	X	X	X			
Black Scoter	X					X	
Bufflehead	X	X					
Red-breasted Merganser	X	X	X	X			
Bald Eagle	X	X					
Northern Harrier				X		X	X
American Kestrel		X			X		
Spruce Grouse		X			X		
Willow Ptarmigan			X	X	X		X
Rock Ptarmigan					X		X
Sandhill Crane						X	
Lesser Golden-Plover	X			X			X
Semipalmated Plover	X						
Greater Yellowlegs		X	X				
Whimbrel						X	X
Sandpipers	X					X	
Common Snipe		X	X				
Parasitic Jaeger						X	X

SPECIES	FAH	CNF	CTS	OLS	USF	WGH	MGH
Long-tailed Jaeger						X	X
Bonaparte's Gull	X	X					
Mew Gull	X						
Herring Gull	X						
Glaucous-winged Gull	X						
Glaucous Gull	X	X					
Arctic Tern	X					X	
Great Horned Owl		X	X		X		
Belted Kingfisher	X						
Tree Swallow	X	X			X	X	
Bank Swallow	X	X					
Common Raven	X	X	X	X	X	X	X
Chickadee		X	X		X		
American Robin		X	X	X	X		
Varied Thrush		X	X		X		
Wilson's Warbler			X		X		
American Tree Sparrow				X	X	X	
Savannah Sparrow				X			
White-crowned Sparrow			X	X	X		
Lapland Longspur							X
Rusty Blackbird			X	X	X		
Broad Whitefish	X						
Pink Salmon	X						
Chum Salmon	X						
Arctic Grayling	X						
Northern Pike	X						
TOTAL - 73	44	29	27	23	31	26	17
PERCENT TOTAL	60	40	37	31	42	36	23

1. FAH - Freshwater Aquatic Herbaceous
   CNF - Closed Needleleaf Forest
   CTS - Closed Tall Shrub Scrub
   OLS - Open Low Shrub Scrub
   USF - Unknown Shrub Forest
   WGH - Wet Graminoid Herbaceous
   MGH - Mesic Graminoid Herbaceous

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